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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,945	03/16/2001	Toshiaki Katsuma	KAW-247-USAP	5294

7590 12/09/2003  
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Washington, DC 20038-7613

EXAMINER

PATEL, GAUTAM

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

TS

**Office Action Summary**

Application No.

09/808,945

Applicant(s)

KATSUMA, TOSHIAKI

Examiner

Gautam R. Patel

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 6 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-2 and 4-6 are pending for the examination.

### Specification Objected

2. The disclosure is objected for following reasons.

Specification needs to be updated with respect to information on the related applications. Cross-References to Related Applications: See 37 C.F.R. § 1.78 and section 201.11 of the M.P.E.P.

Corrections are required.

### *Claim Rejections - 35 U.S.C. § 103*

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 5-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugiura et al., US. patent 6,130,872 (hereafter Sugiura). in view of Kamihara et al., US. patent 5,695,274 (hereafter Kamihara).

As to claim 1, Sugiura discloses the invention as claimed [see Figs. 1-28, especially 1, 3 and 8] including A diffraction type lens and zone plates, comprising:

A diffraction type lens [fig. 1, unit 50], disposed in a luminous flux, having a wavelength selectivity;

said lens being constituted by a substrate having one surface formed with a zone plate exhibiting a smaller converging action with respect to a wavelength X1 [650 nm] of light and a greater converging action with respect to a wavelength X2 [780 nm] of light, and the other surface formed with a zone plate exhibiting a smaller converging action with respect to said wavelength X2 of light and a greater converging action with respect to said wavelength X1 of light, said substrate being transparent to said wavelengths X1 and X2 of light, wherein each of said zone plates having a rectangular cross section [see figs. 19 and 23] [col. 6, lines 42-67 and col. 8, lines 2-19].

Sugiura discloses all of the above elements, including a zone plates with a rectangular cross section. Sugiura does not specifically discloses that zone plates could be formed comprising concentric gratings.

However, concentric gratings [with rectangular cross section] are well known in the art for a long time [e.g., see Mino et al.; US patent 3,756,695]. it is well known in the art that most gratings are selected according to the system requirements and their shape is chosen accordingly. Also Kamihara clearly discloses:

zone plate comprises concentric gratings having a rectangular cross section [col. 14, lines 23-49 and fig. 27a and 27b]. Both Sugiura and Kamihara are interested in improving the optical system and providing best diffraction grating suitable for particular system.

One of ordinary skill in the art at the time of invention would have realized that ease in manufacturing the gratings is good function have especially for mass production. Therefore, it would have been obvious to have used a concentric gratings in the system of Sugiura as taught by Kamihara because one would be motivated to reduce cost of manufacturing and also convert light flux with high efficiency [col. 5, lines 18-35].

4. As to claim 2, Sugiura discloses:

said diffraction type lens is shaped like a parallel plate [col. 6, lines 42-67 and col. 8, lines 2-19].

5. As to claim 5, it is rejected for the similar reasons set forth in the rejection of claim 1, supra. As to the added limitation of flux incident on the lens is substantially parallel [see col. 9, line 55 to col. 10, line 9; Sugiura].

6. As to claim 6, Sugiura discloses:

luminous flux is converged at a position where two kinds of optical recording media having thickness values different from each other are disposed, said wavelength X1 of light being used for recording or reproducing one optical recording medium [DVD], said wavelength X2 of light being used for recording or reproducing the other optical recording medium [CD] [col. 6, lines 11-67 and col. 8, lines 2-19].

#### ***Allowable Subject Matter***

7. Claim 4 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claim 4 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a diffraction type lens which includes "one surface formed with height h1 and second with height h2 which satisfying four equations as disclosed in claim 4 and values of K1 and K2 are between 0.65 to 1.35". It is noted that the closest prior art, Sugiura et al. (US 6,130,872) shows a similar apparatus which has dual light sources with two different wavelengths and also computes the surface of the lens [fig. 3] based on height [thickness] and refractive index and also clearly indicates relationship of two wavelengths and refractive index [figs. 20 and 21]. Also Kamihara shows relationship between depth [or height], wavelength and refractive index [see col. 14, lines 40-49]. However Sugiura and Kamihara fails to disclose details of the equations used in these calculations in specific manner as claimed in claim 4, especially limits constants K1 and K2..

#### ***Other prior art cited***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Mino et al. (US. patent 3,756,695) Optical low-pass filter
2. Suzuki et al. (US. patent 4,733,943) Pickup for optical disc
3. Maruyama (US. patent 6,344,935) Optical system ....

***Contact information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.



Gautam R. Patel  
Patent Examiner  
Group Art Unit 2655

December 6, 2003